Naval Surface Warfare Center, Dahlgren Division

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Commander

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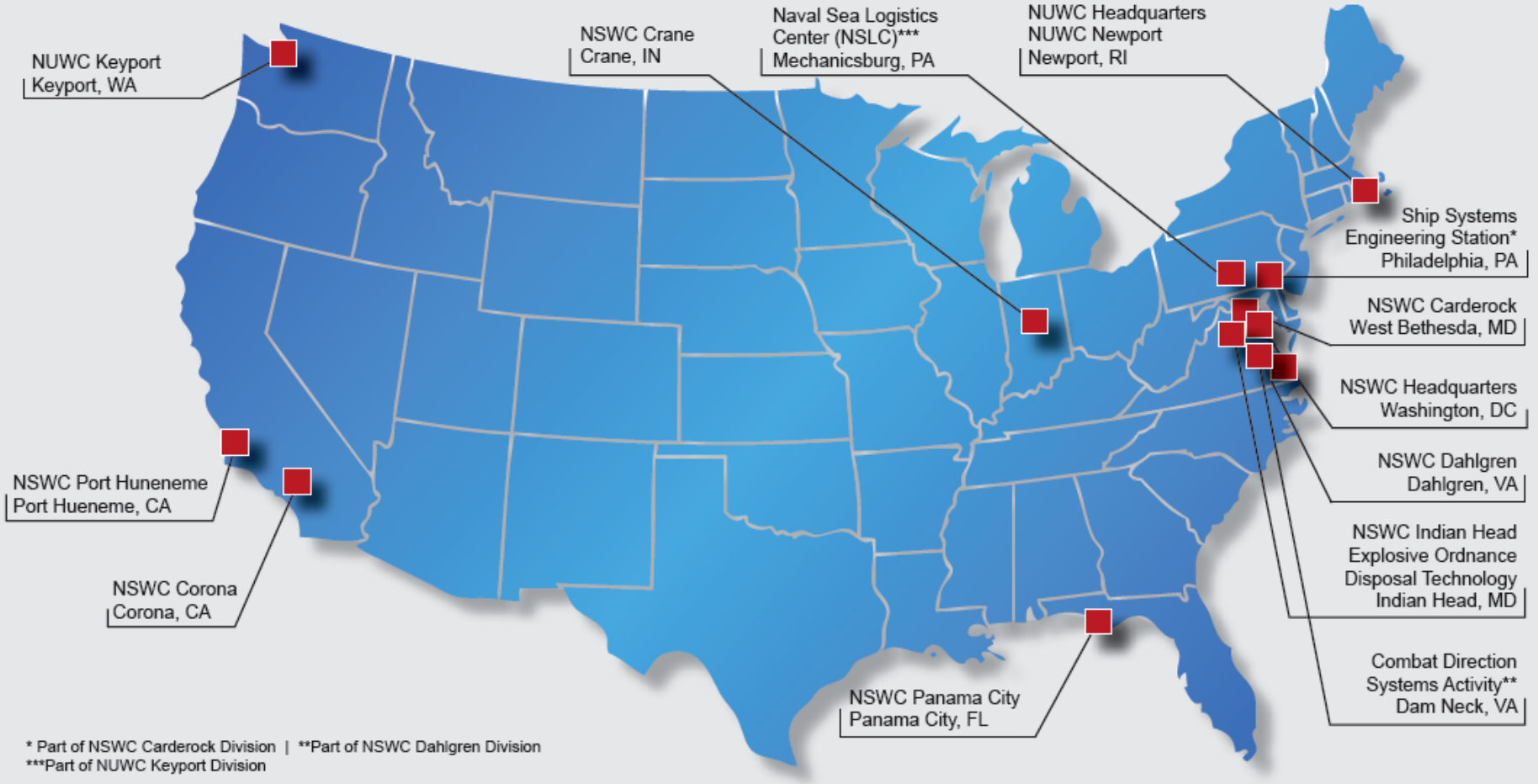
Technical Director

House Armed Services Committee (HASC)
Intelligence, Emerging Threats & Capabilities Subcommittee

11 December 2013

Warfare Center Enterprise



- Provide research and development (R&D), test and evaluation (T&E) for the future Navy and in-service engineering and logistics support to the current Navy
- Business-based enterprise operating under the Navy Working Capital Fund (NWCF)
- Aligned under 133 Technical Capabilities across 9 Divisions
- Diverse and highly educated workforce focused on innovation (~14,700 scientists, engineers, and technicians with over 600 Ph.D.s)
- Maintain and operate unique research, development, test and evaluation facilities

Naval Surface Warfare Center
Dahlgren Division

- NSWC Dahlgren Division (NSWCDD) is a naval Research, Development, Test and Evaluation (RDT&E) institution founded in Naval Warfare, providing science, technology, engineering leadership and innovation that our nation's naval and joint forces rely upon for superior warfighting capability.
- NSWCDD serves as the surface Navy's center of excellence for combat and warfare system integration and certification.

NSWC Dahlgren Division

$1.3B Business Base

Updated 11/13

How We Got Here

NAVSEA WARFARE CENTERS DAHLGREN

NAVSEA WARFARE CENTERS DAM NECK

NSWC Dahlgren: A Legacy of Evolution & Revolution

1918 1940 1950 1960 1970 1980 1990 2000+

TODAY and the Future

Systems Engineering

- Combat Systems
- New Warfare Concepts
- Ballistic Missile Defense
- Integrated Warfare Systems

- Electric Weapons
  - Multi-use (Sense, ID, Engage)
  - Scalable effects
  - Lower cost

Computational Sciences

- Targeting
- Strategic Fire Control Computation
- Digital Fire Control

- Advanced materials
  - Topside Design
  - Control of RF environment

- *Distributed Networked Systems*

Research & Development

- Math, Physics, Chemistry, Engineering

- *Integration of Unmanned and Autonomous Systems*

Test & Evaluation

- *Advanced Sensors*

NSWCDD, Dahlgren, Virginia
Integrated Capabilities

E3 Testing

Chem-Bio Defense

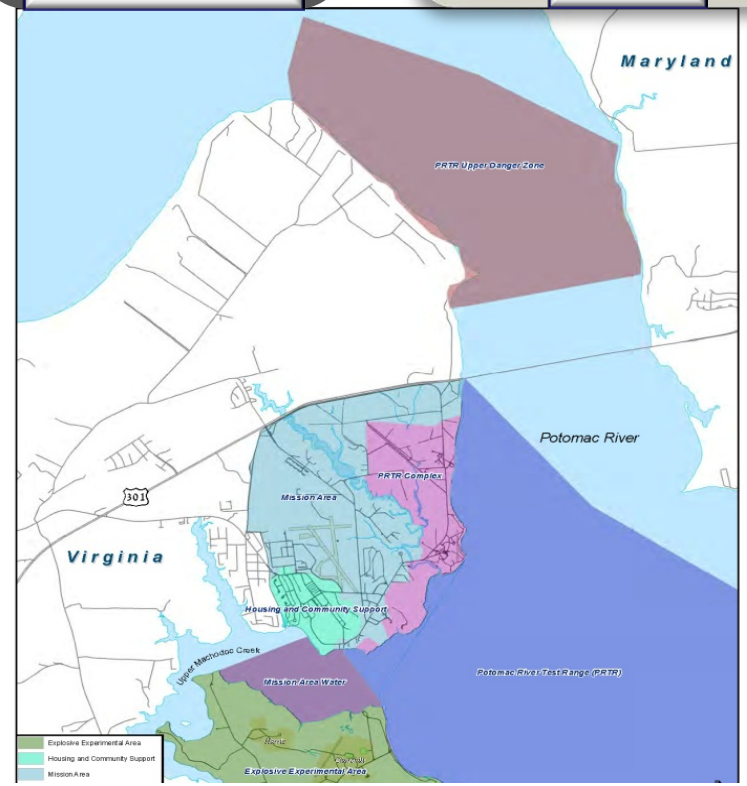
Railgun

Naval Directed Energy Center

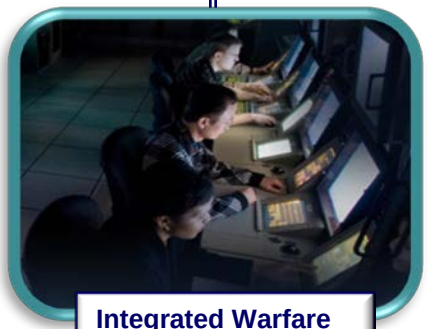
Sensors and Surface Combat Systems

SLBM Fire Control Systems

Tomahawk



Ordnance Testing



Integrated Warfare Systems Laboratory

Providing capabilities and innovative solutions in the areas of weapons and sensor systems, and combat systems for 95 years.

NSWCDD
Combat Direction Systems Activity, Dam Neck

NAVSEA's Hampton Roads Warfare Center

Direct Coordination with Training Commands

NSWC Dahlgren Division

Emergency Homeland Defense Capability

Joint and Coalition Warfighting

"VACAPES OPERATING AREA"

The Only Test and Training space in the world covered by land-based SPS-48 SPS-49 and SPY 1 Radars.

CDSA, Dam Neck Command

Celebrating our 50-year heritage of complex mission critical systems, software and hardware engineering, development & life cycle services for real-time tactical systems co-located with Hampton Roads Warfighter and Training Commands and the US Atlantic Fleet

NSWC Dahlgren Division Program Areas

G Engagement Systems

- Advanced Weaponry
- Expeditionary Weapon Sys.
- Guns and Munitions
- Launcher Systems and Integration
- Lethality, Vulnerability, and Systems Effectiveness
- Small Boat & Land Vehicle Systems Integration
- Systems Safety Eng
- Test and Evaluation
- Unmanned Systems Integration

K Strategic & Weapon Control Systems

- Strategic Systems Programs
- Surface and Under Sea Warfare
- Tomahawk
- Aegis Weapons Control Systems
- Littoral Combat Ship Surface Warfare
- Vertical Launch System

Q Electromagnetic & Sensor Systems

- Surface Ship Radars
- Directed Energy/CIED
- E3 Programs: Systems Engineering, Radiation Hazards Program, HERO, SEMCIP/EM, Electro-optic/Infrared (EO/IR) Systems
- Spectrum Engineering Management
- Topside Design
- Advanced Computational Technologies
- Electronic Warfare (EW) Systems Integration

W Warfare Systems

- Combat Control & Integration
- Future Warfare Systems Engineering
- Warfare Analysis
- Warfare Systems Tech & Concept Exploration
- Open Architecture (OA)
- BMD Systems Engineering
- Human Systems Integration
- Joint Track Management
- Naval Integrated Fire Control

Z Asymmetric Systems

- Chemical-Biological & Radiological Defense (CBRD)
- Identity Management, Biometrics, & Forensics
- Mission Assurance
- Tagging, Tracking, & Locating (TTL)
- Anti-Terrorism and Force Protection (AT/FP)

F Maritime and Joint Systems

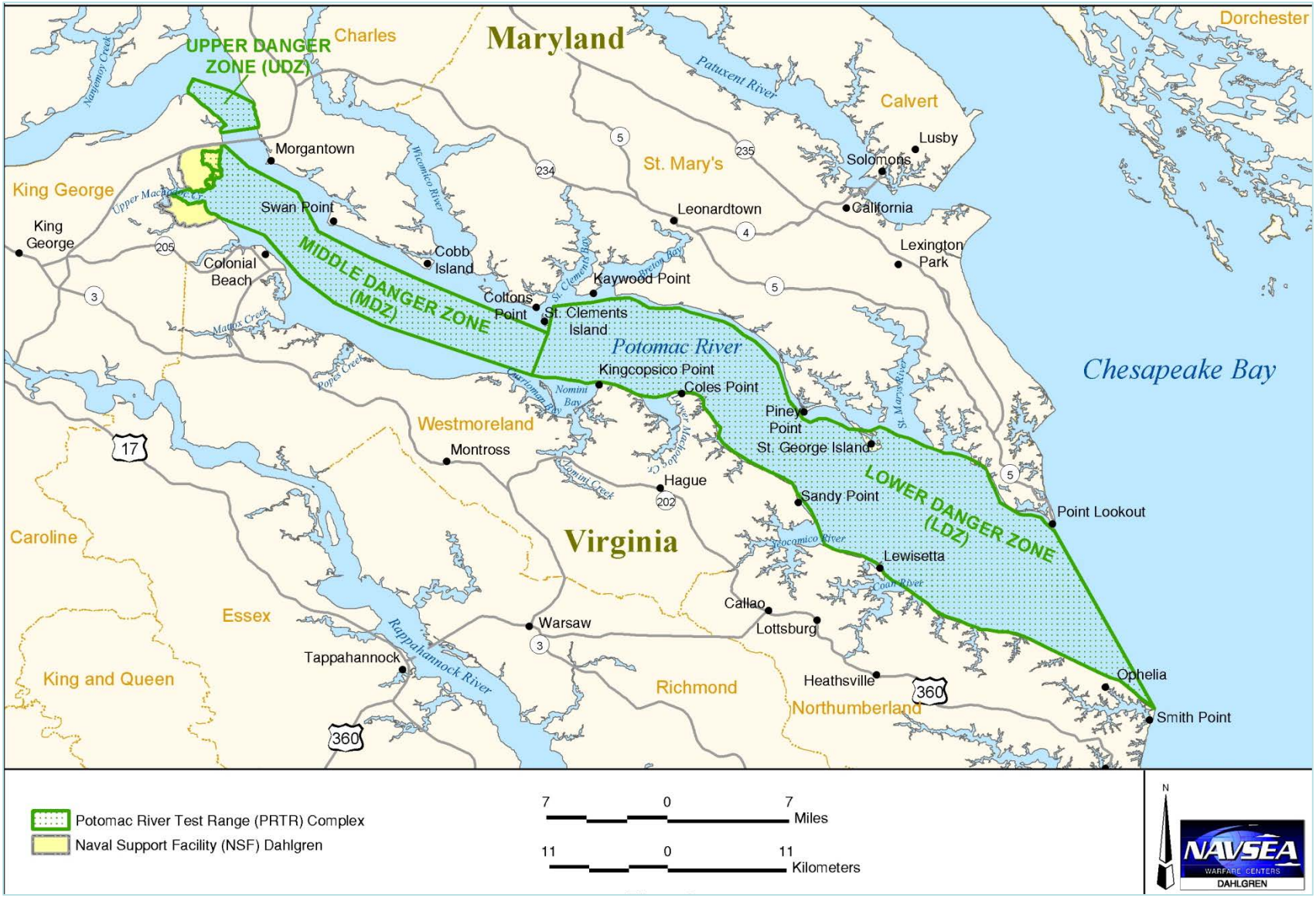
- Integrated Training Capabilities
- Force Integration & Inter-operability
- Integrated Combat Control Systems
- Global Maritime Security

NSWCDD Technical Capabilities

- *Force & Surface Platform Level Warfare Systems Analysis and Modeling*
- *Weapon Systems Analysis, Effects, and Effectiveness*
- *Radar and Electro-Optic Systems RDT&E*
- *Surface Warfare Systems Engineering & Integration RDT&E*
- *Surface Combat Systems Engineering & Integration RDT&E*
- *Surface Combat Control Systems S&T, RDT&E*
- *Surface Conventional Weapon Control Systems RDT&E*
- *Surface Warfare System and Force Level Certification/IV&V*
- *Human Systems Integration Science and Engineering*
- *Surface Missile Systems Integration*
- *Surface Conventional and Electromagnetic Gun Systems RDT&E*
- *Directed Energy Systems RDT&E*
- *Weapons Systems Integration for Surface, Air and Ground Unmanned Systems*
- *Expeditionary and Other Weaponry Systems RDT&E*
- *Strategic Mission Planning, Targeting, and Fire Control Systems*
- *Re-Entry Systems*
- *Surface Electronic Warfare Systems Architecture & Combat System Integration RDT&E*
- *Surface Warfare Systems Safety*
- *Surface Warfare Electromagnetic Environmental Effects*
- *Chemical, Biological and Radiological Warfare Defense Systems*
- *National Response Missions, Including Homeland Security and Defense*
- *Physical & Non-Physical Vulnerability Analysis*
- *Force Level Warfare Systems Engineering and Integration*
- *Force Level Warfare Systems Interoperability Engineering*
- *Tactical Common Data Communications Systems Integration and Interoperability*
- *Integrated Surface Combat Control Systems Support*
- *Integrated Training Systems*
- *Radar Distribution Systems*
- *Joint Command and Control Systems Integration and Architecture Development*

•Indicates work performed at CDSA, Dam Neck

Potomac River Test Range Complex



NSWCDD Numbers

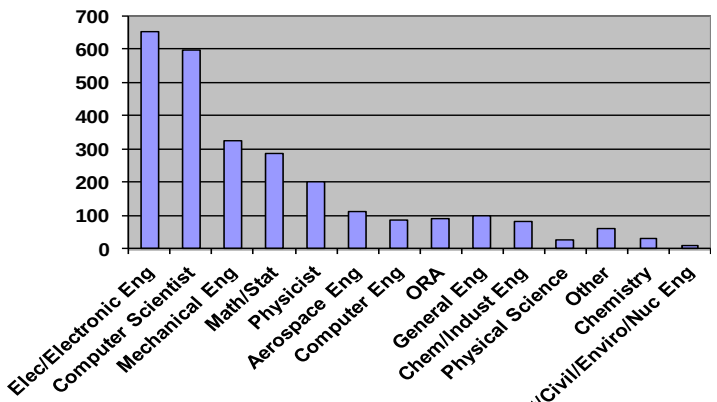
Business Baseline

$1.3 BILLION

Total Contracting Effort	Buildings Occupied	Total Square Feet
$695.8M	209	1,923,410

Civilian Staffing

S&E DISCIPLINES



Updated 11/2013

SCIENTISTS & ENGINEERS

2,672

Workforce Education

BACHELORS	1980
MASTERS	949
DOCTORATE	139

Total # of Employees

3,747

Average Years of Service

14

Total Military

42

Average Age of Workforce

43

Questions

Back up

Representative Technical Roles

- *Specialty Site for Naval Surface Weapons Systems Integration*
- *NAVSEA 05 Technical Warrant Holder Resident on Campus*
  - Combat and Weapon Control Systems – Surface Ship; Guns – Surface Ships; Launcher Systems – Surface Ship (except USW); Missiles - Surface Ship; Radar and RF Systems – NAVSEA (except submarines); EMI Control/EMC/EMP/RADHAZ – Surface Ship; Displays & Human Factors Engineering, Directed Energy & Electric Weapons
- *NAVSEA's Technical Expert for Directed Energy & Rail Gun*
- *Software Design Agent for SLBM Fire Control and SSGN AWS Launch Control*
- *LSEA for Aegis Combat System*
- *ISEA for Aegis Weapons System Computer Programs*
- *Trusted Agent for Safety, Lethality, E3, Integrated Topside Design, Anti-Tamper, CBR*
- *TDA/DA/AEA/SEA for many programs, including:*
  - Launchers, CEC, Q70, SGS, Navy Identity Dominance System, CBR Collective Protection Systems, CB Detection, Decontamination and Information Systems, VLS SW, CADRT, Integrated Base Defense
- *Certification Agent for Surface Warfare Systems*
- *System Development Activity Lead for Tomahawk Weapon Control System*
- *Coordination Agent for Aegis Combat System IA Efforts*
- *Joint PM for Collective Protection*
- *JPO-Chem-Bio Defense Host office*
- *Chair, Naval Counter Improvised Explosive Devices (CIED) Knowledge Network (NCKN)*